

human cell lines MOL T4 and U937 (94°C 30 sec, 50°C 30 sec, 74°C 30 sec for 35 cycles). Two novel cDNA's, P1TR-c and P1TR-f, related to p110, were isolated. The P1TR-c nucleotide sequence is shown in Figure 20. This gene is highly related to the yeast gene VPS34, the VPS34 protein is involved in the protein sorting from the golgi to the vacuole and has an intrinsic PI3-kinase activity. The P1TR-f nucleotide sequence is shown in Figure 21 and is more similar to p119 than P1TR-c and is likely also to possess PI3-kinase activity. The alignment of human p110, the human PI3-kinase related genes P1TR-c and P1TR-f and the yeast PI3-kinase VPS34 are shown in Figure 22. The amino acids conserved in 3 or more of the proteins are shown in the upper case.

IN THE CLAIMS

Cancel claims 39-50 without prejudice.

Add claims 51-61 which follow:

does it teach this?

Claim 51: A method for determining expression of a gene which encodes a human polypeptide that has PI3 kinase activity and a molecular weight of about 110 kiladaltons as determined by SDS-PAGE, comprising contacting a sample with a nucleic acid molecule which hybridizes specifically to a transcript of said gene, at 1MNaCl, 10xDenhardt's solutions; 50mM Tris-HCL (pH 7.4); 10mM EDTA; 0.1%SDS; 100µg/ml denatured herring sperm DNA at 65°C for 16 hours, followed by a wash of 2XSSC; 0.1%SDS at 42°C, or a wash of 0.5XSSC/0.1% SDS at 50°C, or a wash at 0.1XSSC/0.1%SDS at 65°C, or a wash at 0.1XSSC/0.1% SDS, at 68°C and determining said hybridization as a determination of expression of said gene.

when is NA?

Claim 52: The method of claim 51, wherein said nucleic acid molecule is labeled with ³²P.

Claim 53: The method of claim 51, wherein said nucleic acid molecule is an antisense, RNA molecule.

Claim 54: The method of claim 51, wherein said nucleic acid molecule is a DNA molecule.

Claim 55: The method of claim 51, wherein said method comprises polymerase chain reaction.

Claim 56: The method of claim 51, wherein said nucleic acid molecule comprises a nucleotide sequence set forth in SEQ ID NO: 12, 14, 15, 16, 17, 18, 21, 22, 24, 25, 27 or 29. *including 15, 16, 17, 18, 21, 22, 24, 25, 27, 29*

Claim 57: The method of claim 51, comprising contacting said sample with a pair of oligonucleotide primers, said pair selected from the group consisting of (i) SEQ ID NOS: 12 and 14, (ii) SEQ ID NOS: 15 and 16, (iii) SEQ ID NOS: 17 and 18, (iv) SEQ ID NOS: 21 and 22, (v) SEQ ID NOS: 24 and 25, and (vi) SEQ ID NOS: 27 and 29.

Claim 58: The method of claim 51, wherein said sample is RNA isolated from a cell sample. *Not further limiting*

Claim 59: A method for determining if a cell contains a gene which encodes a human polypeptide which has PI3 kinase activity and a molecular weight of about 110 kilodaltons as determined by SDS-PAGE, comprising isolating DNA from said cell and contacting isolated DNA with a labeled nucleic acid molecule which hybridizes specifically to said gene at 1MNaCl/10XDenhardt's solution/50mM Tris-HCl (pH 7.4)/10mM EDTA/0.1%SDS/100µg/ml denatured herring sperm DNA at 65°C for 16 hours followed by a wash of 2XSSC/0.1%SDS at 42°C, or a wash of 0.5XSSC/0.1%SDS at 50°C, or a wash at 0.1XSSC/0.1%SDS at 65°C, or a wash at 0.1XSSC/0.1%SDS, at 68°C and determining hybridization as a determination of presence of said gene. *will describe gene sequence*

Claim 60: The method of claim 51, wherein said gene encodes a human polypeptide, the amino acid sequence of which is encoded by the nucleotide sequence set forth in SEQ ID NO: 32.

Claim 61: The method of claim 51, wherein said gene encodes a human polypeptide, the amino acid sequence of which is set forth in SEQ ID NO: 37.